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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,777	09/23/2004	Takuya Yoshimi	Q83562	7965
23373	7590	04/12/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			FISCHER, JUSTIN R	
			ART UNIT	PAPER NUMBER
			1733	

DATE MAILED: 04/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/508,777

Applicant(s)

YOSHIMI ET AL.

Examiner

Justin R. Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 92304.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. It is initially noted that the restriction requirement set forth on February 28, 2006 has been withdrawn in light of applicant's amendment.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 4, 5, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura (US 5,931,211, of record). As best depicted in Figure 5, Tamura discloses a pneumatic tire construction having a belt comprised of two cord layers 20 and a belt reinforcing layer 22 formed of circumferentially extending reinforcing cords, wherein said cords are preferably formed of polyethylene-2,6-naphthalate or PEN (Column 3, Lines 10-36). While the examples of Tamura only include a 1260D/2 and 1500D/2 construction, it is evident that these constructions are exemplary. This point is further evident from the use of the variable "D" in the twist coefficient having a value between 0.20 and 0.72 (Column 5, Lines 50+). In this instance, one of ordinary skill in the art at the time of the invention would have found it obvious to form the PEN fiber cords of Tamura in accordance to the claimed invention since the examples of Tamura are extremely close to the claimed cord construction and

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the particular cord construction is a function of the specific tire and the additional reinforcement/tire structure. Furthermore, applicant has not provided a conclusive showing of unexpected results to establish a criticality for a cord construction having a total count of not more than 2,400 dTex.

In regards to Tables 1 and 2, the results are not seen to be persuasive. In particular, the comparative tires contain different cord constructions and twist coefficient, as compared to the inventive tires, and as such, it is unclear if the disclosed benefits should be attributed to the cord construction and/or the twist coefficient. It is further noted that Example Tires 2 and 6 additionally have different cord densities or end counts as compared to the comparative tires. Thus, it is evident that Tables 1 and 2 do not provide a conclusive showing of unexpected results.

Regarding claim 2, Tamura teaches a preferred range of 0.20 to 0.50 for the twist coefficient, which fully encompasses the range of the claimed invention. In regards to the cord construction, the exemplary constructions of Tamura are extremely similar to those of the claimed invention (comprises two yarns having similar count). In this instance, the reference fails to expressly suggest values for the total denier or dTex count. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to form the PEN fiber cord of Tamura with the claimed construction as it is a function of the specific tire being manufactured and the additional reinforcement/tire structure.

As to claims 4 and 5, the fiber cord of Tamura has elongation properties that are consistent with those detailed by the claimed invention (Column 4, Lines 10-25).

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Regarding claim 8, Tamura teaches that the belt reinforcing layers are formed by spirally winding narrow, rubber coated strips (Column 3, Lines 20-25).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura as applied claims 1 and/or 2 above and further in view of Ueyoko (US 5,205,882). As noted above, Tamura discloses a tire construction having a zero degree belt reinforcing layer formed of PEN fiber cords. In this instance, Tamura describes said PEN fiber cords as having a high modulus of elasticity. The reference, however, fails to suggest the properties of the coating/topping rubber. Ueyoko, on the other hand, is similarly directed to a zero degree reinforcing layer formed of a non-metallic, high modulus reinforcing cord. In this instance, Ueyoko suggests that the coating/topping rubber should be between approximately 3 and 7 MPa (Column 4, Lines 10+), which includes a substantial portion of the claimed range, in order to balance the reinforcement characteristics and the heat generation. As such, one of ordinary skill in the art at the time of the invention would have found it obvious to form the coating/topping rubber of Tamura in accordance to the claimed invention, there being no conclusive showing of unexpected results to establish a criticality for the claimed modulus values. Lastly, in regards to the rebound resilience, such a property represents a mechanical property that is related to the modulus and heat generation- given the teachings of Ueyoko, one of ordinary skill in the art at the time of the invention would have expected the rubber to demonstrate a resilience of at least 60% (low hysteresis or heat generation is associated with higher rebound resilience).

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5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura as applied in claims 1 and/or 2 above and further in view of Yamaguchi (US 5,373,886) and Katsura (US 5,355,925). In regards to the zero degree belt reinforcing layer, Tamura is completely silent with respect the end count or cord density. In any event, one of ordinary skill in the art at the time of the invention would have found it obvious to use an end count between 40 and 70 cords per 50 mm since such a range is broad and consistent with the end counts commonly used in similar zero degree reinforcing layers, as shown for example by Yamaguchi (Column 3, Lines 30-40 and Column 5, Lines 50-53) and Katsura (Column 5, Lines 25-35). It is emphasized that the claimed values are consistent with similar zero degree belt reinforcing layers and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed end count.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura as applied in claims 1 and/or 2 above and further in view of Maathuis (US 4,989,658) and Oare (US 6,634,397). Tamura is completely silent with respect to the gauge of the ribbon strip used to form the belt reinforcing layer. In any event, it is extremely well known that the gauge of such a rubber strip is a function of, among other things, the cord diameter and the type of tire being manufactured. Maathuis provides one example of a tire having a zero degree reinforcing layer in which the strip gauge is slightly less than that of the claimed invention (Column 3, Lines 1-10)- the reference thus, though, evidence the claimed values as being consistent with similar values used in zero degree reinforcing layers. Oare is additionally applied to evidence the wide range of gauges for

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similar reinforcement layers as a function of the specific tire and the amount of reinforcement (Abstract). It is emphasized that a wide range of gauges are used in the tire industry and absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found the claimed range obvious. It is noted that Oare expressly recognizes a wide range of gauges as a function of the type of tire being manufactured and this rationale is equally applicable to zero degree reinforcing layers.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Justin Fischer

April 6, 2006